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Regionalization Options for Small Water Systems

SMC Martin, Inc., Valley Forge, PA

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This document describes many forms of regionalization and analyzes the associated benefits; costs; and financial, legal, organizational, and political aspects. Case histories illustrate the concepts and kinds of regionalization options available. This document also provides a methodology to help communities evaluate and tailor options for their particular situations.

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REGIONALIZATION OPTIONS FOR SMALL WATER SYSTEMS

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TABLE OF CONTENTS

		Page
I.	INTRODUCTION	I-1
II.	UNIQUE PROBLEMS FACING SMALL WATER SYSTEMS	II-1
III.	REGIONALIZATION--DEFINITION AND OPTIONS	III-1
	Definition	III-1
	Nonstructural Options	III-2
	Structural Options	III-7
	Summary	III-13
IV.	ANALYSIS AND SELECTION OF A REGIONALIZATION OPTION	IV-1
	Legal Authority	IV-2
	Costs	IV-3
	Policy/Political Constraints	IV-4
	Assessment of Service Delivery Resources	IV-5
V.	IMPLEMENTATION	V-1
APPENDIX A	Case Histories	
APPENDIX B	References and Other Sources of Information	

LIST OF TABLES

Table		Page
1	Regionalization Options	III-3
2	Advantages and Disadvantages of Informal Agreements	III-4
3	Advantages and Disadvantages of Basic Service Contracts	III-5
4	Advantages and Disadvantages of Joint Service Agreements	III-7
5	Advantages and Disadvantages of Regional Council of Local Elected Officials	III-8
6	Advantages and Disadvantages of Association/Non-Profit Water Supply Corporation	III-10
7	Advantages and Disadvantages of Local Special-Purpose Districts	III-11
8	Advantages and Disadvantages of Annexation	III-13
9	Advantages and Disadvantages of the Areawide Special District/Authority	III-14

LIST OF FIGURES

Figure		Page
1	Suggested Sequence of Events for Regionalization Implementation	V-4

I. INTRODUCTION

Small water system owners and operators, faced with situations that adversely affect their ability to provide an adequate and safe supply of drinking water, often overlook "regionalization" as a remedy for their problems. Regionalization, as discussed in this document, involves the cooperation of system owners and, perhaps, the consolidation of financial resources, physical plants, and/or personnel.

The main benefit of regionalization is that it pools individual resources of two or more water systems to obtain services or facilities that one or both systems may not have been capable of obtaining by themselves. Thus, two adjacent towns may decide to share the services of one full-time water quality engineer. Or, if they need new treatment plants, but individually cannot afford them, they may be able to implement the regionalization concept and build one shared facility.

When proposed, the regionalization concept is often viewed solely as a means to create a larger entity that will consume independent water systems, resulting in a loss of local policy control. However, even more than the traditional and often negative perception of physical takeover, regionalization remedies can include a wide range of options that provide positive benefits to the participating systems.

This document is designed for individuals likely to be involved in regionalization of water supply entities: (1) decision-makers, including water supply professionals, elected officials, state and local governmental representatives, and affected consumers and (2) technical and planning personnel responsible for implementing the decision to regionalize.

This document describes many forms of regionalization and analyzes the associated benefits; costs; and financial, legal, organizational, and political aspects. Case histories illustrate the concepts and kinds of regionalization options available. This document also provides a methodology to help communities evaluate and tailor options for their particular situations.

The range of alternatives presented here implies that each community has different water supply needs and must find solutions to fit its own needs. The proper size for a local or areawide utility is best determined by analyses of resources, terrain, distances, costs, capacities, operational, political, and institutional considerations, and environmental impacts.

Even in those situations where large systems are deemed most appropriate, such systems cannot be created quickly; they must evolve. Many of the choices offered here can be used successfully either as a final solution to a local problem or as part of an evolutionary process leading to a new water supply entity.

To facilitate the presentation of this information, this document is divided into five (5) sections, plus appendices, as follows:

Section	Subject Guide
I	Introduction - This section introduces the concept of regionalization and its broad benefits, and briefly outlines the content of the document.
II	Unique Problems Facing Small Water Systems - This section presents background on the status of small water suppliers in this country, outlines some of the problems unique to small systems and outlines some regionalization success stories.
III	Regionalization - Definition and Options - This section defines the term regionalization as used in this document, and describes in detail regionalization options available to small water systems. Advantages, disadvantages and ficticious illustrative examples are presented.
IV	Analysis and Selection of a Regionalization Option - This section analyzes the options described in the previous section and outlines issues to be considered by personnel considering and evaluating regionalization options.
V	Implementation - This section presents a suggested critical path model outlining steps in the implementation of a regionalization option.
Appendix	The Appendix is divided into two (2) subsections; one presents three (3) case histories of successful regionalization efforts and the second presents a list of references.

Regionalization options, as defined and described in Section III, include both "nonstructural" and "structural" options. Simply stated, nonstructural regionalization involves the formulation of working relationships among autonomous local water supply entities while structural regionalization involves the creation of new legal entities that reduce or eliminate the autonomy of local water supply systems. The options described in detail in this document are the following:

Nonstructural Regionalization Options

- Informal agreement
- Basic service contract
- Joint service contract
- Regional council of local selected officials

Structural Regionalization Options

- Association/nonprofit water supply corporation
- Local special district
- Annexation
- Areawide special district/authority

The ability to implement any regionalization option is dependent on many factors. Enabling legislation must be in place at the state level for local governments and water utilities to enter into agreements, form special districts or authorities. If such legislation is not in place, legislative action will be required.

Also, to successfully implement a regionalization option, it must be advantageous (or, at least, not disadvantageous) to all parties involved and must provide the following characteristics:

- o economic efficiency - to provide water supply service at the lowest possible cost
- o fiscal equity - to distribute the cost of service equally among customers served
- o political accessibility - to allow for high level citizen participation in decision making
- o administrative effectiveness - to deliver water in an efficient and technically proficient manner

Many questions must be addressed in the process of implementing a regionalization program. Some are suggested in Section IV; others may develop in the course of specific regionalization efforts.

In summary, regionalization offers valid approaches to the resolution of many problems faced by small water supply systems. Each situation is different, however, and may be appropriately addressed either by nonstructural or structural options. The choice of most appropriate options should be in the hands of well-informed water supply professionals assisted by equally well-informed political leaders and concerned citizens. This document provides the background information necessary to initiate the process of ensuring that these participants are, in fact, well-informed. Further, it provides a framework that provides directon to the search for, and implementation of, appropriate regionalization options.

II. UNIQUE PROBLEMS FACING SMALL WATER SYSTEMS

"From 1961 through 1978, drinking water caused 407 outbreaks of disease or poisoning, resulting in 101,243 recorded illnesses and at least 22 deaths,"(1) according to a recent General Accounting Office (GAO) report. Indeed, the apparent incidence of waterborne diseases has increased since the 1950s, according to the same report. During the period 1946-1970, there were 53 outbreaks of waterborne infectious disease due to typhoid, but there were 297 outbreaks attributed to other bacterial or viral agents and these numbers probably represent only the "tip of the iceberg," since sporadic, random cases of gastroenteritis generally go unreported.(2)

The GAO report referenced above was issued as a review of national progress toward the goals stated in the Safe Drinking Water Act of 1974. Based on this act, the Environmental Protection Agency (EPA) proposed National Interim Primary Drinking Water Regulations (NIPDWRs) in 1975 (effective January 1977) and later promulgated Maximum Contaminant Levels (MCLs) for various substances.

The Environmental Protection Agency estimates that there are approximately 60,000 community water systems in the country. Of these, approximately 39,000 or 65 percent of the total can be categorized as "very small"--serving 25 to 500 people. An additional 14,000 systems, or 23 percent of the total can be categorized as "small"--serving 501 to 3,300 people.

The existing known problems with the U.S. water supplies are significant, especially in systems classified as small and very small. In 1980 alone, more than 900 small water supply systems were persistent violators (in violation more than 3 months during the year) of the national bacteriological MCLs, and another 1,560 systems were intermittent violators (in violation 3 or less months of the year). The potential problems with systems in these size categories are even larger.

Small water systems, approximately 90 percent of the systems in the United States, suffer from the following circumstances:

- Fixed capital and operation and maintenance costs are not spread over enough customers to keep individual customer costs at reasonable rates.
- Small water systems have limited revenues and assets; these systems often find it difficult to borrow funds for improvements.
- The low number of customers served tends to produce insufficient revenues: systems cannot offer salaries to attract and retain skilled managers and operators.
- Many small water systems are located in rural or other low density areas with low population growth rates; these systems have no predictable larger customer tax base in the future to finance capital improvements.

- Customers served by small water systems often have low or fixed family incomes; instituting necessary rate increases is difficult.

Many small water systems operate on a marginal basis, with little financial and operational reserves to ensure that reasonably high quality water and service are consistently provided. The result, often, is a potentially hazardous water supply for consumers and an inability to meetState and Federal drinking water standards.

Because of these circumstances, small water systems are frequently unable to generate sufficient resources--financial, operational, or managerial--to correct existing deficiencies. In addition, owner/operators are also unable to respond effectively to unplanned improvements or emergencies. But owner/operators of small water systems must consistently deliver safe and dependable supplies of drinking water, even though they find it inherently difficult to manage, operate, and maintain their systems properly.

The difficult situation in which many small water systems find themselves is not necessarily a hopeless one. Regionalization offers an often overlooked approach to problem solving. It is an approach that can easily be tailored to the specific needs of the utilities involved, and one that has met with success in many parts of the country. Typical of some of the success stories are the following:

- Pinellas, Pasco and Hillsborough Counties, Florida where a regional authority (West Coast Regional Water Supply Authority) was created to acquire and operate existing local facilities and plan new facilities on a regional basis.(3)

- Dayton, Ohio where the Cities of Dayton and Vandalia and Montgomery County entered into a three-way cooperative agreement to expand and upgrade water storage and transmission facilities without sacrificing local ownership or administrative control.(4)

- New Castle County, Delaware where the City of Wilmington has entered into water supply agreements with the City of Newark and two (2) private water supply companies.(5)

- Washington, where the state via the Public Water System Coordination Act of 1977, has provided a mechanism for water supply planning on a statewide level and is encouraging the consolidation of water systems.

- Indiana County, Pennsylvania, where a countywide authority was created to upgrade and maintain the quality of water supplied to eleven (11) small communities.(6)

- Cowlitz County, Washington, where the County Department of Public Works maintains and operates six (6) small water supply systems, five (5) of which are owned by the County and one (1) of which is handled via a service agreement.

This list could continue indefinitely since many regionalization

techniques are available and practiced. The next chapter discusses various regionalization options in detail. The Appendix includes detailed case histories of regionalization efforts in the States of Washington, Pennsylvania and Texas. More information concerning the other examples cited herein can be obtained from the referenced source material.

III. REGIONALIZATION--DEFINITION AND OPTIONS

Regionalization of water supply service has traditionally been defined in two broad terms: either the creation of an administrative organization (nonstructural) to operate and maintain two or more water systems or a physical interconnection of water systems (structural). Most recent definitions of regionalization have highlighted this differentiation. This document, however, uses a modified definition to highlight the ways in which regionalization can occur.

DEFINITION

> Regionalization is the administrative or physical combination of two or more community water systems for improved planning, operation, and/or management. Regionalization should be viewed in the context of a range of possible approaches, from the actual physical interconnection of systems to an adminstrative and management arrangement to provide common technical, operational, or financial services for two or more systems.

This definition is keyed very closely to the numerous methods local governments typically use to adapt to the changing needs and service demands within their jurisdictions.

Nonstructural options are generally administrative or managerial arrangements that allow for the continued identity and independence of the participating water systems. Nonstructural options emphasize a change in "procedure"; hence, the organization and policy control of the participating water systems and governmental units remain essentially intact and unaltered. These options emphasize a change in business practice rather than a reorganization.

Procedural changes, however, can have secondary effects that result in organizational changes; the specific nature of these impacts is not always predictable. For example, a basic service contract between two water systems for the provision of emergency repair service could lead to a more permanent relationship in which the provider system takes over the complete operation and maintenance function for the recipient system.

In contrast, structural options require the creation of a new management or political entity to operate and maintain the water systems. Structural regionalization options result in the reorganization of the participating entities regardless of their previous ownership status. When implemented, the affected systems generally do not revert back to their original ownership and policy control status. Thus, the structural options are regarded as being more direct in their impact on the existing water supply owners than are the changes resulting from the implementation of the nonstructural options.

In practice, a regionalization scheme does not have to embrace any one specific option, but may

involve a mixture of forms or an evolution of forms that changes over time from the more simple to the more complex. The classes of regionalization options are summarized in Table 1. The options are discussed here in the context of their broad characteristics, requirements and advantages and disadvantages.

NONSTRUCTURAL OPTIONS

The nonstructural regionalization options are those that do not affect current ownership and policy control of the water supply system. The least rigid option is the "informal agreement," consisting of a bartering or trading of service or hardware, as needed. More formal is the "basic service contract," a legal purchase (via contract) of discrete services (e.g., laboratory time), which are otherwise unavailable to the purchaser. A "joint service agreement" is a democratic (equal partners) arrangement wherein the partners agree to jointly pursue mutual goals or needs. They probably are not "buying" anything from each other. The regional council of local elected officials may be a Council of Governments-type organization, working essentially under an informal agreement, but with the collected powers of their respective governments behind them. The group has no legal enforceable arrangement, but they could unite in purchasing agreements for such basic items as chemicals or hiring personnel, or they could explore the cost-effectiveness of designing one new water treatment plant to serve their political jurisdictions.

Informal Agreement

Informal agreements have their basis in a voluntary cooperative decision between two or more water supply entities or other service entity equipped to provide a needed function to share a commonly needed component. Informal agreements can span long terms or can be used on an as-needed basis, such as when water is supplied from one system to another on an emergency basis to accommodate system breakdowns. The provision of a water supply activity or component can involve payment in the form of money or services or may be provided without charge. Systems may informally agree to:

- Share laboratory facilities
- Share storage facilities
- Share billing equipment
- Provide water on an emergency basis
- Share operation and maintenance (O&M) functions or personnel

The general benefit of informal agreements is best summarized in a report prepared by the Illinois State Department of Local Government Affairs:

> Informal agreements of this type are far more prevalent than written agreements because of their ease of implementation. In some cases, an informal agreement provides an operational basis, a "dry run," upon which to work out details of a formal agreement. The delays in extended negotiations are removed. As interlocal reliance and dependence for service expands, these informal agreements assume a binding quality since mutually relying entities

TABLE 1

REGIONALIZATION OPTIONS

Nonstructural

- Informal agreement
- Basic service contract
  - Wholesale/retail water contract
  - Contract operation and maintenance (Circuit rider agreement)
- Joint service contracts
  - Common facilities
- Regional council of local selected officials

Structural

- Association/nonprofit water supply corporation
- Local special district
- Annexation
- Areawide special district/authority

will not want to jeopardize their supply of services. (7)

The main advantages and disadvantages of an informal agreement are summarized in Table 2.

An example of an informal agreement is found in two communities close to each other, one of which is experiencing water supply capacity difficulties and the other finding it difficult to provide effective police service. The communities informally agree to exchange these services--water for police protection. The communities agree that there is a mutual exchange of services of common value and that each party is equally compensated; thus, no exchange of money occurs.

Basic Service Contract

The simplest formal regionalization option is the basic service contract, which provides for the delivery of some aspect (or range) of water supply service. This contract involves the creation of a legal document between water systems or a water supply services company to provide a service to the other systems. Under a basic service contract, policymaking and financing usually remain with the recipient of the service, and the provider performs agreed on service functions.

TABLE 2

ADVANTAGES AND DISADVANTAGES OF
INFORMAL AGREEMENTS

Advantages	Disadvantages
Easy to create or implement	Not legally enforceable
Adjustable to duration of need	Easy to terminate
Forerunner of more binding relationship	No formal continuity from administrator to administrator
Easy to terminate	

Basic service contracts are the most widely used method of regional cooperation among local governmental units, public entities, and private companies and present a flexible, yet enforceable arrangement. Specific functions may be contracted:

- o Water purchase contracts--wholesale and retail
- o Contract Operations and Maintenance (O&M)--emergency and repair
- o Water plant operation and maintenance
- o Distribution system maintenance
- o Billing and collection

The most common use of basic water supply service contracts is to provide water on a wholesale or retail basis. These contracts usually arise when raw water source quality or quantity becomes, or is determined to be, unacceptable, requiring either the construction of a sophisticated treatment system or the development of a costly new water source. These two factors alone (unacceptable water quality and quantity) have probably given rise to the creation of more water contracts than any other factors.

These contracts can also make available various types of specialized services to small water systems that are unable to obtain the necessary facilities or qualified staff to provide the services for themselves. Contract provision of O&M and laboratory services are finding increasing use as water systems are attempting to both upgrade the quality of service to their customers and to comply with Federal and State regulatory requirements. Existing water systems and water supply service companies are both beginning to offer these types of services to small water systems.

Specific advantages and disadvantages common to basic service contracts are shown in Table 3.

Cowlitz County, WA, implemented its satellite water system support concept by entering into contracts with a number of county organizations to operate and maintain their water and sewerage systems. As a part of the contract, the county regularly sends qualified water system operators to verify the proper operation of the water treatment and distribution systems; these operators also provide

TABLE 3

ADVANTAGES AND DISADVANTAGES OF
BASIC SERVICE CONTRACTS

Advantages	Disadvantages
Easy to create	Easy to terminate
No restrictions on local autonomy or policy control	Temporary solutions (possibly)
No governmental reorganization	Too expensive (sometimes)
Adjustable to meet changing service needs and demands	
Realization of unit cost savings via larger quantity purchases (economies of scale)	
Able to provide specialized services not otherwise available	
No voter approval required	

regular and emergency maintenance and repair services.

In Bell County, TX, the Certified Water Service Company now contracts with 14 water systems each of which serves 100 to 800 customers. Certified Water Service Company provides O&M and water sampling services, prepares water quality monitoring reports, distributes monthly bills, and collects revenues.

Joint Service Agreement

Joint service agreements involve the sharing or exchange of activities among two or more water systems or other service entities. A joint service agreement is normally more complex than is a basic service contract; thus, the agreement places more restrictions on the participants. Administrative decisions are typically made by a joint governing body of representatives from each participating system.

Joint service agreements establish the participating systems as partners in the provision of a particular water supply activity; parties to these agreements generally have similar levels of administrative and financial authority and responsibility. Planning, contracting, financing, and/or operating costs to provide the joint activity are shared by the systems.

Joint service agreements can be formed for the following purposes:

- Development of a water source
- Ownership of system facilities
  - Storage facilities
  - Laboratory
  - Maintenance facility
  - Vehicles

- o Purchasing
  - Chemicals
  - Parts
- o Exchange or sharing of service activities
  - Operations and Maintenance
  - Billing and collections

Specific advantages and disadvantages common to this option are shown in Table 4.

Two communities could discover that their existing wellfields are becoming insufficient to accommodate the water supply demands created by recent population growth. Their studies indicate that ground water can no longer be relied on for safe and dependable supplies of drinking water. A nearby river could serve as a raw water source, but neither community can afford to design and construct the required water plant. The communities determine that, together, they can afford to construct and operate the plant, as well as the transmission lines to each distribution system.

The communities decide to enter into a joint service agreement. All responsibility for decisions regarding the funding, operation, and maintenance of the plant is given to a two-member management group composed of the communities' town managers, who must vote unanimously to determine policy matters.

The cost of construction, operation, and maintenance of the plant and transmission lines is divided between the two communities, based on the percentage of the capacity of the plant each community will use. The communities will be credited for in-kind contributions to the system, including personnel, equipment, and attorney time. In addition, the communities reserve the right to enter into purchase water contracts with other users in the area. The rights and privileges of municipal employees will not be altered by their assignments. As a result of this agreement, the communities will be able to meet their water supply needs well into the future; furthermore, the supply will be far more dependable than were their well-based systems.

Regional Council of Local Elected Officials

Different from the other nonstructural regionalization options, a regional council of local elected officials provides a forum for the identification of problems common to a given area. The area of concern is one which often crosses jurisdictional boundaries. Such a council encourages common action to resolve problems so that resources are committed more efficiently, thus eliminating regional duplication of effort. Although no legal obligation results from council resolutions, participating members can agree on mutual courses of action.

As an example, several adjacent communities each own and operate their own water supply systems. None of the communities want to give up autonomy in water supply, but they realize that some degree of joint planning will be necessary, particularly to protect the integrity of raw water sources. The communities decide to form a regional council of governments and appoint elected members of the community councils as represen-

TABLE 4

ADVANTAGES AND DISADVANTAGES OF
JOINT SERVICE AGREEMENTS

Advantages	Disadvantages
Easy to create	Impact on local autonomy and policy control
Realization of unit cost savings via larger quantity purchases (economy of scale)	More difficult to terminate than basic service contracts
Minimal disruption of existing organizational and administrative structures	Benefits to outside jurisdictions that do not compensate participants
More permanent than basic service contracts	Sometimes difficult to distribute costs equally
More uniform coordination and administration of services	Difficult to compute and equally distribute some overhead costs
More efficient use of personnel, equipment, and facilities	Difficult for participants to provide service themselves if the agreement fails
Able to provide specialized services not otherwise available	
Elimination of duplication of facilites	
Increase in overall efficiency of service	
No voter approval required	

tatives. The initial mandate of the regional council is to review the water supply situation and report back to the member communities. None of the communities is bound by the recommendations of the regional council. Funding for regional council activities is provided by the member communities.

Specific advantages and disadvantages common to this option are shown in Table 5.

STRUCTURAL OPTIONS

Structural regionalization options as defined here require (1) creation of a new water supply entity or (2) a shift in policy control or function among existing entities. These adaptations thus involve local provider, utility, or governmental realignment or reorganization. Such adaptation is accomplished either by enlarging an existing unit or by creating a new entity to accommodate a locality's new or changing water supply requirements.

TABLE 5

ADVANTAGES AND DISADVANTAGES OF
REGIONAL COUNCIL OF LOCAL ELECTED OFFICIALS

Advantages	Disadvantages
Easy to create	Decisions not legally enforceable
Provides centralized planning and coordination	No power to raise funds
Provides forum for community and individual input to decision-making	Relation to other governmental units strictly advisory
No restrictions on local autonomy or policy control	

The structural options generally provide more permanent solutions to an area's water supply problems (although these arrangements do require more effort by participants to negotiate and to resolve legal issues) than do the nonstructural schemes. The new or larger entities can seek a much greater range of financing sources, often critical to capital improvement projects, and attract and support a more talented management and technical staff.

Association/Nonprofit Water Supply Corporation

Associations or nonprofit water supply corporations (hereafter referred to only as associations) are functionally equivalent in their characteristics and functions. Usually created under the authority of a state charter, these entities commonly exist in unincorporated and largely rural areas. Some, however, have grown to occupy a sizable portion of a county, either by extending service into previously unserved areas or by consolidation of existing systems.

Associations (and nonprofit water supply corporations) are the simplest structural regionalization option available. They are relatively easy to create and usually have little effect on existing local government organization and service functions. The representatives of the participating entities who wish to form an association normally petition the state for authority to operate. As a part of the petition, the participants designate a board of directors, responsible for the policy control of the association. Decisionmaking responsibilities rest with the board, which is made up of at least one representative from each of the participating entities. For a very small association, the directors are selected from the users of the proposed system.

Associations have been established in a number of states to consolidate small water systems. Their formation has generally been

encouraged by their ease of creation and by their eligibility for federal financing, primarily by Farmers Home Administration grants and loans. This assistance has been used both for water system improvement and system expansion.

Associations are essentially nonprofit institutions; thus, any and all profits from water supply operations must be either applied to existing short- or long-term debt, redistributed proportionately to the customers, or placed in a sinking fund for system maintenance and improvement.

Specific advantages and disadvantages of associations are shown in Table 6.

Ohio's Adams County Water Corporation is a nonprofit association formed to join together relatively weak water systems. Largely by extension of service area and consolidation of existing systems, this association presently serves 2,000 customers in five communities. Four of the water systems serving these communities have been physically interconnected; the fifth has retained its own water treatment and distribution system. Each connected community has a member on the board of directors, and rates for these communities have been set at a level that covers only annual operation and maintenance of the systems and repayment of existing debt.

Local Special-Purpose District

Local special-purpose districts are generally units of local government that provide a specific service to a defined geographic (service) area. These districts are differentiated from areawide special districts (discussed later in this section) primarily on the basis of scale (a singular or few versus many communities), number of services provided (one versus a range) and impact on local government (minimal versus substantial).

Local special-purpose districts frequently offer the only mechanism that will provide a badly needed service (water of acceptable quality and quantity) in a given area. Local governments can be restricted by debt limitations and tax base limitations (Proposition 13; TRIM, etc.); in addition, governments are also restricted by their own political boundaries. However, a local special-purpose district can establish boundaries to surround the geographic territory needing service and will have its own financing mechanisms (bond market, special assessments, etc). Also, a local district, formed from a group of even smaller water providers, can often afford to employ more technical, highly skilled personnel than could the previous water providers individually.

Unfortunately, some of the advantages of these districts can, in real life, create impediments to their implementation. Supporters and organizers must, therefore, take into consideration and accommodate local pride and individual personalities in the communities to be served. Transfer of the water supply function to a new operator (the special district) may antagonize current owners and their customers, even though the latter will have a representative on the new group's board of directors. They may

TABLE 6

ADVANTAGES AND DISADVANTAGES OF
ASSOCIATION/NONPROFIT WATER SUPPLY CORPORATION

Advantages	Disadvantages
Easy to create	No power to tax
Authorized to acquire water sources and construct and operate a water distribution system	Not authorized to issue general obligation bonds
Power of eminent domain	Limited powers in relation to other governmental units
Authorized to issue bonds secured by assets and revenues	
Not-for-profit operation	
Authorized to seek Federal financing	

well not control the new board as they did the old system. And local pride may also surface as districts that cross political boundaries are formed. In addition, benefits of the new system may accrue in the long term while capital costs may accrue in the short term. This may cause concern and objections among customers facing immediate special assessments who perhaps cannot visualize (or totally understand) the future gains to be achieved.

Local districts are usually created by local governments, which receive their authority from enabling state statutes. Normally, the creation of such a district begins with taxpaying residents petitioning for its establishment. After a hearing by the appropriate state or local governmental agency, the request is approved or denied. If approved, confirmational elections are held to determine voter support. After voter approval, directors are either appointed by local government officials or elected by the citizens to govern the district. Once the boundaries are set, the specific service is restricted by those boundaries, and revenues to support the service can come only from the users within that boundary.

It is difficult to characterize the specific legal requirements, organization, and powers of local districts because these entities are probably the most varied and least studied forms of local government entities. Nonetheless, the most common characteristics of local districts are that they possess only the powers they need to provide a specific service within their defined boundaries. They are semi-autonomous in respect to the parent government.

Specific advantages and disadvantages of local special-purpose districts are shown in Table 7.

TABLE 7

ADVANTAGES AND DISADVANTAGES OF
LOCAL SPECIAL-PURPOSE DISTRICTS

Advantages	Disadvantages
Often provides the only method to provide a badly needed service	General obligation bonds not backed by full faith and credit of parent government
Power of eminent domain	Restricted to revenue bonds, which can be repaid only by user revenues
Authorized to levy special assessments	Powers limited directly to those required to provide service
Can match service areas with service needs	Quasi-governmental entity
More efficient than local government	Susceptible to public opposition because of its permanence
Greater financial flexibility than local government	
Less restrictive than local government on cooperative agreements	
Convenient and inexpensive way to provide service in rural areas	

Annexation

Annexation occurs as a water system extends its service area to include neighboring territory. This extension can be a change in the boundaries of a water supply service area established by law (water districts, authorities, etc.) or of corporate limits (incorporated communities). In the instance of private water systems and nonprofit water supply corporations that do not have recognized boundaries, extension of water service does not involve legal annexation of a geographic area.

Annexation procedures vary with the governmental character of the municipality and state involved. A municipal water system will ordinarily expand to serve the area annexed by the municipality. Also, a municipality can generally annex territory already served by an existing private water system or nonprofit water supply corporation; the municipality then has the option to invoke the power of eminent domain to acquire the system. A municipality annexing territory must generally provide a level of service comparable to that received by other areas already served by the municipality. If the quality of service is inferior, the voters in the annexed area may petition for disannexation.

Specific advantages and disadvantages of annexation are shown in Table 8.

As an example, an unincorporated area adjacent to an incorporated town lacks the reliable public water service enjoyed by the town citizens. Conversely, the municipal water department has determined that, in order to remain solvent, it must either, substantially increase rates or find new customers. In meetings with community leaders and concerned citizens, town representatives present the concept of annexation as a means of extending public water supply into the unincorporated area. (Other municipal services, such as police protection, would also be extended.) After sufficient interest is generated, the question is voted on by referendum and passed. The town water department makes an initial investment by extending mains and distribution lines into the new section of town. The increased service population can now more easily absorb the costs of capital improvements and operating expenses.

Areawide Special District/Authority

The areawide special district/authority is distinguished from the local special districts by size of area affected, the larger range of services provided (e.g., water and sewerage), and a higher degree of autonomy. In certain instances, a distinction can also be made between an areawide special district and authority, primarily on the basis of taxing power. The nature of water supply, however, results in revenues being generated by user fees, which tends to blend the characteristics of these entities.

Similar to the local special-purpose district, the areawide special district is considered to be a unit of government with one or more designated functions. The procedure for creating authorities varies across the country, but the most common situation is for states to pass enabling legislation authorizing county and municipal governments to create them. However, in some states, authorities can be created only by special acts of the state legislature.

Authorities are highly autonomous units although they generally cannot rely on taxation or the backing of local government for financial support. They must enter the revenue bonding market on their own and maintain an independent bond rating. This autonomy, however, presents an actual advantage in that the authority is exempt from state-imposed debt ceilings. Also, authorities can initiate projects on a more timely and cost-effective basis than can governmental units. Authorities are not subject to public referendums (which must await an election) or bond issues; authorities can enter the bond market on their own.

Authorities, of course, have their critics. In 1977, nearly 40 percent of the authorities and areawide special districts were administered by appointed officials; the potential, therefore, exists for those running the authority to be unaccessible and unaccountable to their customers. Also, the financing of authority projects has caused difficulty in some communities. Being somewhat outside of government, authorities may not be permitted to take

TABLE 8

ADVANTAGES AND DISADVANTAGES OF ANNEXATION

Advantages	Disadvantages
Immediate increase in service area population	Not easy to implement
Makes use of infrastructure of existing water supply entity	Susceptable to public opposition from those not wishing to be annexed
Provision of service to areas outside original jurisdictional boundaries	Voter approval may be required
Annexed area acquires same rights and obligations as rest of service area	Can be politically motivated
Realization of economies of scale	Not applicable to noncontiguous areas
Power of eminent domain	Capital expense required to service new customers
Applicable to municipal services in addition to water supply	

advantage of centralized administrative services and purchasing, nor are they subject to governmental audit services. Local government purchasing procedures can be more cost-effective than those of an authority; therefore, an authority's projects may cost more than those of a governmental entity. And last, as an autonomous entity, the authority is interested (and generally knows about) only its own projects. Its directors are not involved in the governmental budgetary process and are unaware of the financial priorities being set for the jurisdictions involved.

In summary, authorities are a highly feasible means for financing and providing service although they frequently assume the responsibility of other local governments. Authorities appear to be an essential element of local government, but their principal difficulty is their inability to create the necessary policy and budgetary relationships with overlapping general local government(s).

Advantages and disadvantages are summarized in Table 9.

SUMMARY

The regionalization options presented in this section have progressed in order of generally increasing complexity. As the complexity of the agreement or entity increases, so does its ability to solve a water supply problem increase; however, implementation also becomes more difficult. The increasing complexity of implementation gives rise to additional legal, political, and administrative requirements, which must be resolved before a given option can become viable.

TABLE 9

ADVANTAGES AND DISADVANTAGES OF THE
AREAWIDE SPECIAL DISTRICT/AUTHORITY

Advantages	Disadvantages
No state-imposed debt ceilings	Potential lack of accessibility and accountability
Timely access to major sources of capital	Activities uncoordinated with those of other local governments
Higher salaries to attract more technical and skilled personnel	Potentially less cost-effective
"Quasi-business"	
Provision of service to areas that cross jurisdictional boundaries	
Realization of economies of scale	

IV. ANALYSIS AND SELECTION OF A REGIONALIZATION OPTION

Regionalization options for small water systems, to solve existing or future supply problems, will have unique sets of benefits and costs. Water supply issues are site-specific and often impose constraints that limit the applicability, feasibility, and characteristics of a given option.

The majority of the regionalization options presented will most likely require the participation of at least one local governmental unit. For this reason, individual water systems and governmental entity(s) should both independently and collectively assess a number of factors which can affect the feasibility and success of a given approach.

The decision to implement an informal agreement or basic service contract will be based upon the relatively simple factors of water supply availability and need and the economy of the arrangement. The implementation of the more complex nonstructural and structural regionalization options will require increasing interaction between the participants and a greater awareness of the more complex factors. In those situations where the implementation of a regionalization option will result in the change or reorganization of existing governmental funtional roles, the option selected should have the following characteristics: (1) economic efficiency; (2) fiscal equity; (3) political accountability; and (4) administrative effectiveness. More specifically, these characteristics include:

- Economic Efficency - a given entity should be able to provide water supply at a monetary rate and level of effectiveness acceptable to the customers and should be able to benefit from economies of scale if system expansions are required, thus providing water supply service at the lowest possible cost.

- Fiscal Equity - entities being considered should possess the ability to adequately finance the service, possess sufficient size to accommodate the costs and benefits of the service and be able to distribute the costs equally among the users of the service.

- Political Accountability - a given entity will find greater political backing if it can provide for a high level of citizen participation in the decision-making process and provide for a high level of accountability to the customers served.

- Administrative Effectiveness - an entity selected should have adequate authority to carry out the water supply service function and provide all aspects of that function in an administratively efficient and technically proficient manner. The entity should be able to balance competing interests and demands within their service areas.

These considerations indicate that the potential participants in a more complex regional scheme should be aware of the financial, political, or legal burdens which may arise to inhibit or prevent a successful implementation. Ideally, these conversation subjects and negotiation points should be identified very early in the planning stages and certainly before any formal negotiations begin. The level of complexity of questions to be addressed will increase with the more complex regionalization options.

The general questions that the participants should ask themselves before attempting to implement a regional approach are:

- Do the state's statutes restrict the authority of the participants to implement the approach? What legal requirements are imposed on the approach by these statutes?
- Is there adequate trust and a feeling of mutual cooperation among the participants?
- Are the pooled resources of the participants adequate to meet any increased requirements created by the implementation of the regionalization option?
- How will costs incurred in implementing and administering the entity be distributed among the participants and customers served? What is an appropriate method for determining these costs? What financing and funding sources become available to the entity?

Addressing these general questions early in the planning process will help to avoid later misunderstandings which might otherwise arise after an approach is implemented.

To aid the participants in addressing specific legal, financial, and political questions, this section presents specific questions that should be addressed. During this discussion, the word entity will be used interchangeably to describe a governmental unit or water system. The questions are grouped in four main categories:

- Legal Authority
- Costs
- Policy/Politics
- Assessment of Service Delivery Resources

LEGAL AUTHORITY

Most states have provisions for the creation of regionalized entities and service agreements, but the methods of creation, administrative structure, and legal requirements vary. It is important to understand how the courts have interpreted these provisions under challenge to avoid any conflicts after implementation. For example, the issue of "double taxation" has often arisen when a governmental entity extends service beyond its jurisdictional boundary. The participants should familiarize themselves with the legal interpretations of those statutory provisions which apply to the implementation of the regional approach under consideration.

Assuming that the participants have adequate authority to implement a given regional approach, the

following points will help to ensure that a sufficient level of information exists to implement the given approach.

- o For local governments, can expenditures and revenues be increased without going through a supplemental budgetary process? If not, what steps must be taken to get supplemental funds?

- o For agreements, does state law indicate that it is binding on future governmental bodies? Does the law specify or suggest language to be used in the agreement? Uniform language facilitates multi-jurisdictional participation.

- o What is the normal life cycle of the regional entity or what is the general term of service agreement?

- o Who possesses the legal authority to create the regional entity or service agreement? Must the regional entity or service agreement be reviewed for conformance with the requirements of state law or local charters?

- o Under what conditions can the entity or service agreement be terminated or dissolved? What steps must be taken to initiate termination or dissolution?

- o What sources of revenue are available to pay for the service?

- o Do specific legal requirements address such issues as liability, damages, and property disposition at the termination of the service agreement?

- o Does the law address requirements for the hiring, release, or status of personnel affected by the service agreement or employed by the regional entity? The trend toward governmental and quasi-governmental collective bargaining has a significant impact on labor costs, which generally represent the largest proportion of operation and maintenance costs. This will have an impact on the competitiveness in providing the service.

- o Are specific requirements available to amend basic service contracts and service agreements to adjust to different levels of service and attendant costs?

COSTS

A primary consideration is the cost of providing the service and an equitable method of computing all contributions to the total cost. Where public bodies are involved, costs are subject to public exposure and scrutiny. A prime motivation for regionalizing water supply service is the spreading of major capital expenditures over a larger customer base. State laws generally require, however, that specific improvement costs be applied only to those recipients of the improvements or improvement in service. Appropriate accounting practices should be present for equitable allocation of the costs.

- o If a customer does not pay for the actual costs of a

service provided, will the question of subsidization arise and what problems can be expected? Subsidization usually reverts to the issue of "double taxation" when a provider government uses general taxes to support a service provided to only a portion of its jurisdiction.

- Should an overhead factor be based on a prorated cost of all labor costs, depreciation of assets, rent, and liability insurance? Should only costs identified over and above general overheads be used? These points should be weighed carefully as any decisions during implementation will act as precedents for future decisions. Additional administrative costs such as additional recordkeeping, budget accounts and personnel should be identified and documented.

- What mechanisms should be used to adjust costs to reflect inflation of labor, equipment, and supply costs? Appropriate adjustments are very important in multiyear agreements to ensure quality service is maintained and adequate finances are available to support the level of service.

- What is an adequate method of determining costs, method, and timing of payment? Regional water supply entities often provide service to smaller water systems which possess rudimentary and inadequate methods of accounting and collection.

- In determining costs, should consideration be given to the financial status of the individual recipient water systems? How will this affect the delivery of service to the individual systems in terms of their ability to pay for the service? These are very important considerations as they will affect the ultimate success of the regional scheme.

- What forms of Federal and State funding are available to the regional entity. What are the effects of funding requirements on the general financing of a capital improvements project? What are the effects of funding requirements on user charges? These considerations will have a significant impact on the feasibility of a capital improvement project.

POLICY/POLITICAL CONSTRAINTS

The level of trust and cooperation between the leaders of the participating entities must be carefully assessed. Local jealousy and mistrust have been major inhibiting factors to regionalization attempts. Reaction by the local citizenry to a regional approach must also be carefully weighed and anticipated. General obligation bonds which might be considered by a general purpose government to support a capital improvement project are subject to public approval through a bond referendum.

- What is the expected public reaction to the regional proposal? Is sufficient public support available for approval of the proposal?

What is the expected public reaction to a possible increase in taxes or user charges to support the project?

- Will the increase in the level and quality of service offset any negative public reaction to a tax or user charge increase? What are the best methods to publicize the benefits accruing from a regional approach?

- To which entity should citizens complain about the service: the provider or recipient water system or governmental unit? The participating entities should identify responsibilities in responding to complaints and should establish methods to address them efficiently. Efficient resolution of problems will develop confidence and support for the provider water supply entity.

- What policy control will the participants lose to the regional entity? The nature of respective policy control should be clearly identified during negotiations between the participants to avoid conflicts and misunderstandings later.

- What problems are anticipated during the transition of service? Methods to address these problems and keep citizens informed during the transition should be addressed and implemented to ensure an orderly transition.

ASSESSMENT OF SERVICE DELIVERY RESOURCES

A thorough assessment must be made of available and additional resources that will be required to implement a regional approach. Additional resources required must be accurately identified to ensure an accurate accounting of costs incurred in implementing the regional approach and to ensure that additional resource requirements will not result in a lessening of service competitiveness.

- What changes in resources are expected to be necessary to provide the service? Personnel, facilities, equipment, etc.

- Are sufficient resources available to provide areawide service coverage to benefit from increasing economies of scale?

- Will the regional approach require a reallocation and relocation of personnel and facilities? What impact will this have on total costs and should the recipients bear the costs?

As can be seen from the number and diversity of questions that must be addressed, successful implementation of a regional option requires careful advance planning. Implementation of the complex approaches requires a full understanding of the legal, political, and financial issues before any formal proposals and negotiations begin.

V. IMPLEMENTATION

Previous sections in this manual have defined and described various structural and nonstructural regionalization options. The advantages and disadvantages of each have been reviewed, and questions have been raised for the consideration of concerned individuals pursuing a regionalization plan. It is the steps in this pursuit that are the subject of this section.

There are no clear cut pathways in the successful implementation of a water supply regionalization plan. The so-called "path of least resistance" is rarely the most beneficial. The steps ultimately followed will primarily depend on the following factors:

- Type of need to be fulfilled
- Location of water system needing assistance vis-a-vis other suppliers
- State enabling legislation
- Local political considerations
- Public input
- Cost to the participants

Also, other factors may come into play depending on the individual situation.

Figure 1 presents a "Suggested Sequence of Events for Regionalization Implementation." This chart presents, in a generalized format, the steps most likely to be encountered in the pursuit of a regionalization plan. It is not intended to be a static, unyielding framework. The bottom line in any implementation effort is to do what works. Figure 1 is intended to provide water supply planners and political leaders with guidance as to the activities most likely to be required in the implementation process. It should be adjusted as needed to account for local concerns and requirements.

The "Suggested Sequence" is divided into two (2) main branches, one for nonstructural options and one for structural options. Front-end problem identification and decision making would be identical, however, until the actual option to be pursued is determined. The procedural steps associated with front-end activities is determined as follows:

1. A clear determination of the specific problem(s) facing the water supplier must be made.

2. An honest evaluation of in-house capabilities must be made to determine if the problem(s) can be solved independently, or if external assistance is required. If external assistance is <u>not</u> required, then the decision-makers need progress no further in the sequence.

3. If external assistance is desired, the participant should identify both the strengths and weaknesses of neighboring water suppliers. If no reasonably close suppliers exist, or their strengths are not compatible with the first supplier's weaknesses, a structural remedy may be the only solution.

4. If compatibilities do exist with nearby suppliers, managerial level discussions should be undertaken (with owner knowledge and input) to identify means of possible cooperation. This should lead to a managerial level determination of the most appropriate regionalization option to pursue, and a determination by the respective participants to proceed or not.

At this point in the sequence, certain steps vary depending on the type of option pursued, although similarities exist within the nonstructural and structural options. In the pursuit of nonstructural regionalization options, the following activities should be anticipated:

1. A negotiating team of individuals selected by the water supplier(s) would work out the terms of any informal agreement or service contract. Each party to the agreemnt should fully understand both its obligations to the other participant(s) and the services or compensation it shall receive in return.

2. Once the terms of the agreement or contract are negotiated, a legal review by the respective attorneys is recommended. In addition, input from local political leaders or concerned citizens should also be obtained and considered.

3. The finished agreement or contract is put into operation.

4. Finally, the document and its impact on operations should be reviewed by all parties at regular intervals to determine if its performance is satisfactory, if it should be terminated, or if an additional step to a more permanent structural approach is in order.

The only nonstructural option not falling into this general framework would be a regional council of governments approach. If such an advisory steering committee is preferred, their close cooperation must be obtained among affected municipalities to initiate operations.

Concerning structural regionalization options, the following anticipated tasks would be common to all:

1. An investigation of the legal authority to implement the structural option would be required. Attorneys for the interested entities must determine if appropriate state enabling legislation is in place. If such legislation is required, then contact must be made with the appropriate state representative(s) to initiate action.

   Concerning enabling legislation, a word of caution is appropriate at this point. Legislative requirements regarding the implementation of structural regionalization options vary greatly from state to state. For instance, California, a heavily legislated state, has individual statutes concerning the formation of county water work districts, municipal utility districts, public utility districts, municipal

water districts and water conservation districts. Any one or several of these statutes could impact on the legal requirements for structural regionalization of water systems in California. Conversely, Arizona, a less heavily legislated state, has individual statutes concerning public service corporations and public utilities. (Concerning the pursuit of non-structural regionalization options, it should be noted that all states have statutes governing interlocal cooperation and/or the joint exercise of governmental powers.) Finally, water rights may be an issue of concern in the selection of a regionalization option, particularly in the western part of the United States.

2. Once appropriate general legal authority is in place, the water supplier(s) pursuing structural regionalization should solicit the interest and active support of political leaders and concerned citizens in the affected municipalities for the specific option desired.

3. Finally, once local support is assured, official creation of the structural entity, with its associated elected or appointed directors, can proceed.

As indicated in Figure 1, if at any point in the sequence of events progress must be irrevocably terminated, decision making should revert back to the managerial/owner consideration of options step. Also, after an option is implemented, its performance should be periodically evaluated and adjustments should be made as necessary.

As stated previously, this implementation framework must be tempered by local considerations. It does, however, provide a reasonable outline of the minimum actions required to guide decision makers in the water supply regionalization field.

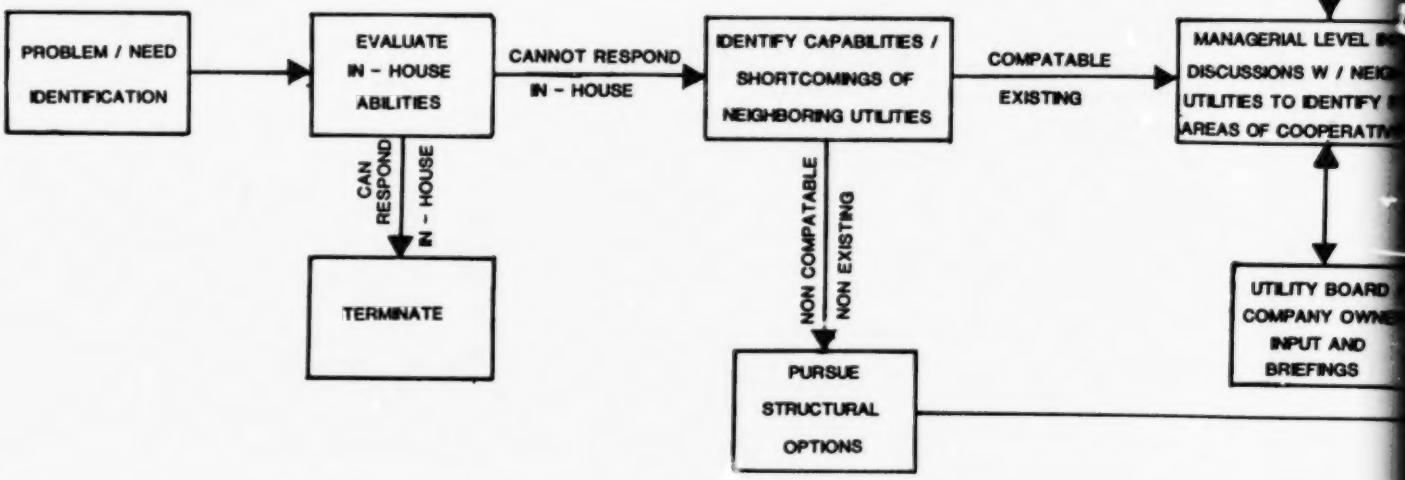
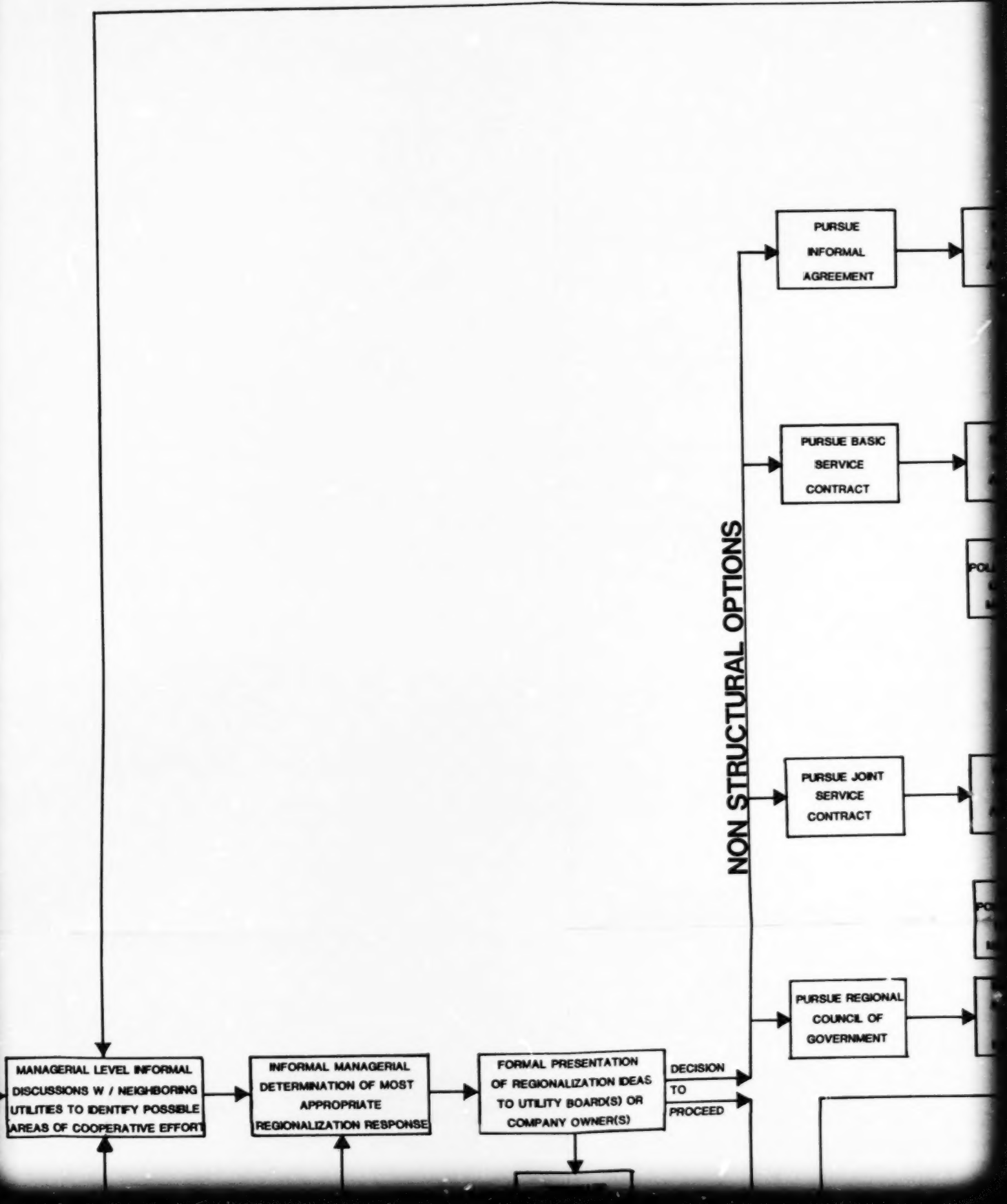


FIGURE 1

SUGGESTED SEQUENCE OF EVEN
FOR REGIONALIZATION IMPLEMENTA


NON STRUCTURAL OPTIONS
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PURSUE BASIC SERVICE CONTRACT
PURSUE JOINT SERVICE CONTRACT
PURSUE REGIONAL COUNCIL OF GOVERNMENT
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INFORMAL MANAGERIAL DETERMINATION OF MOST APPROPRIATE REGIONALIZATION RESPONSE
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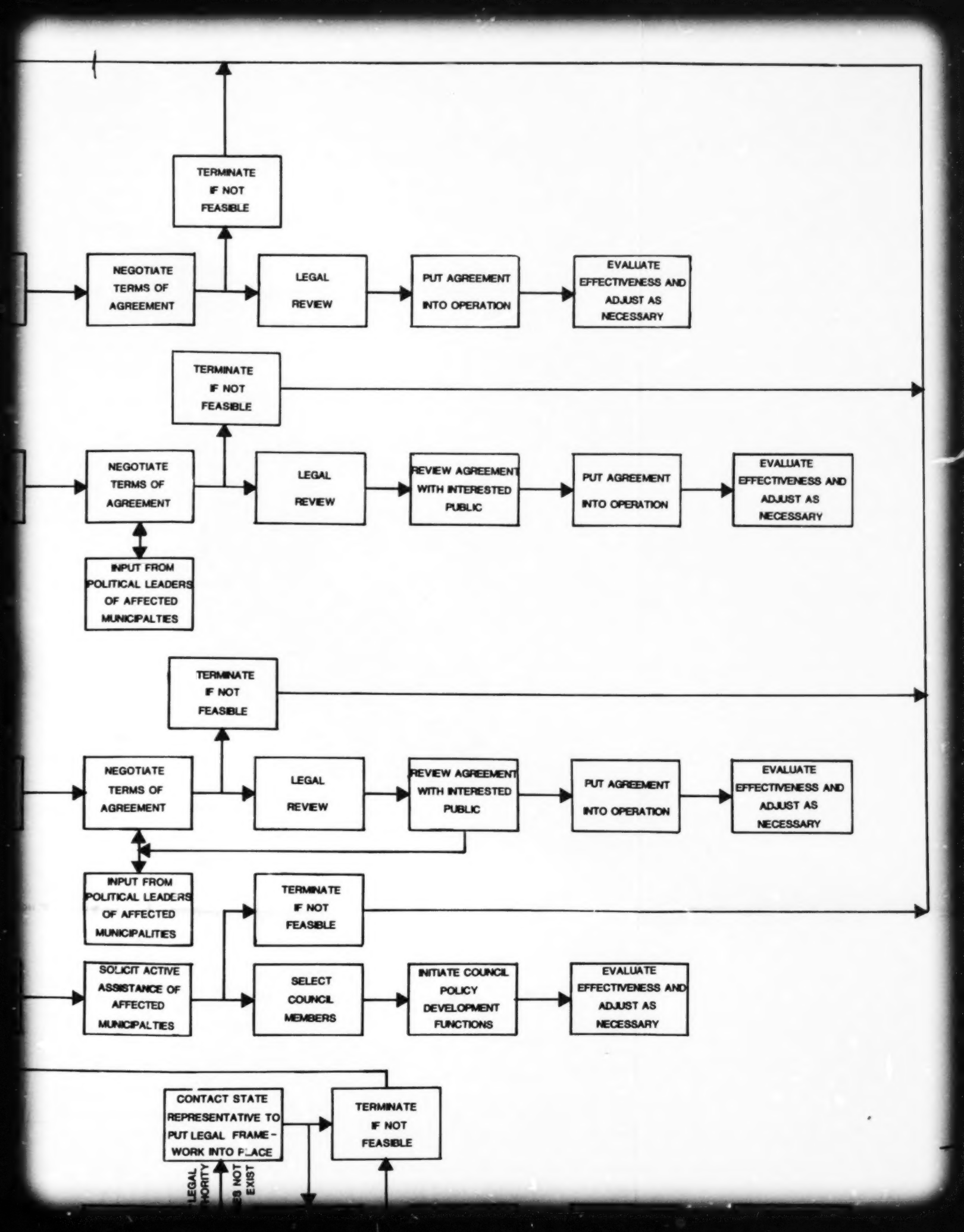
DECISION TO PROCEED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LEGAL REVIEW
REVIEW AGREEMENT WITH INTERESTED PUBLIC
PUT AGREEMENT INTO OPERATION
EVALUATE EFFECTIVENESS AND ADJUST AS NECESSARY
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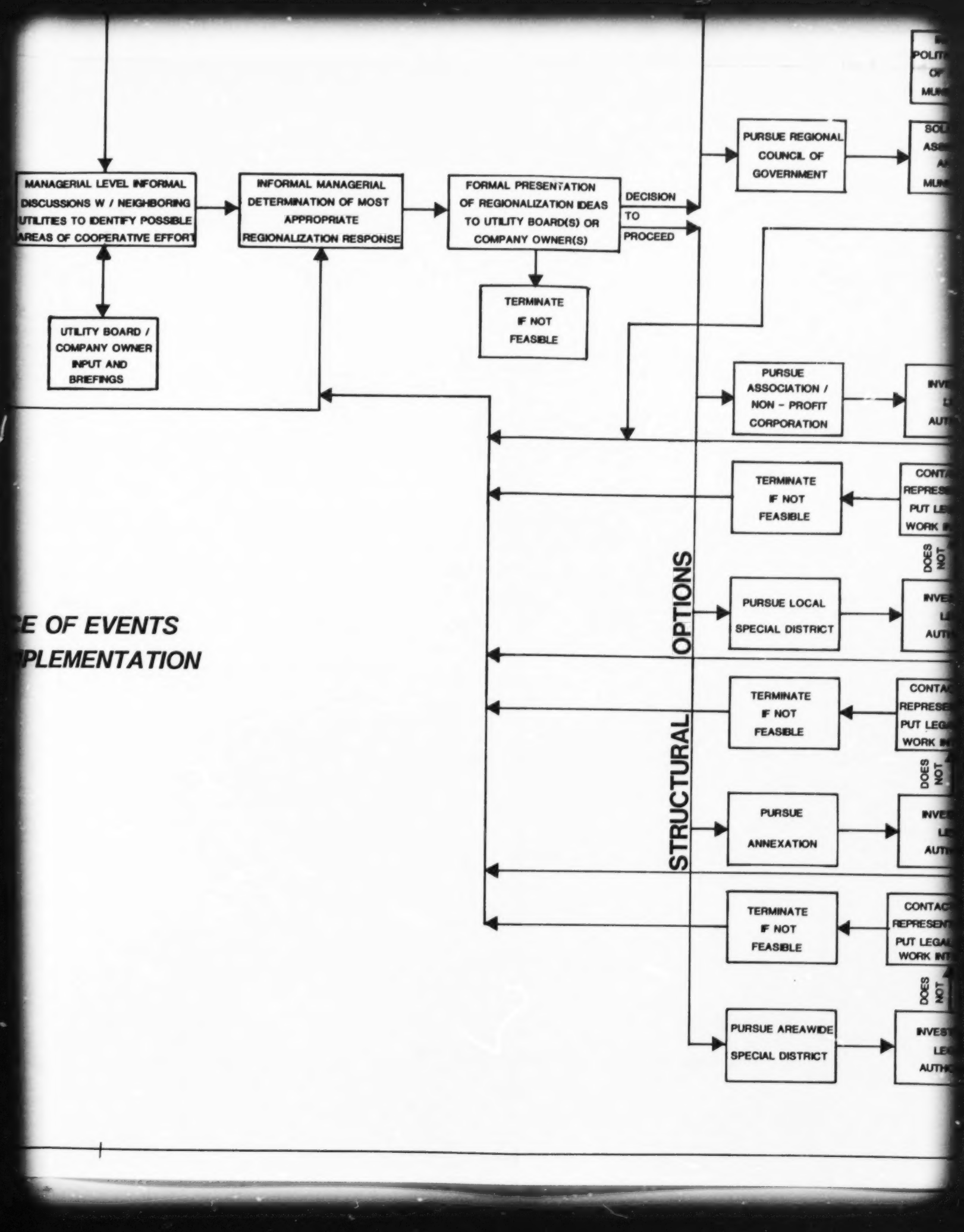
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FORMAL PRESENTATION OF REGIONALIZATION IDEAS TO UTILITY BOARD(S) OR COMPANY OWNER(S)
DECISION TO PROCEED
UTILITY BOARD / COMPANY OWNER INPUT AND BRIEFINGS
TERMINATE IF NOT FEASIBLE
PURSUE REGIONAL COUNCIL OF GOVERNMENT
PURSUE ASSOCIATION / NON - PROFIT CORPORATION
TERMINATE IF NOT FEASIBLE
PURSUE LOCAL SPECIAL DISTRICT
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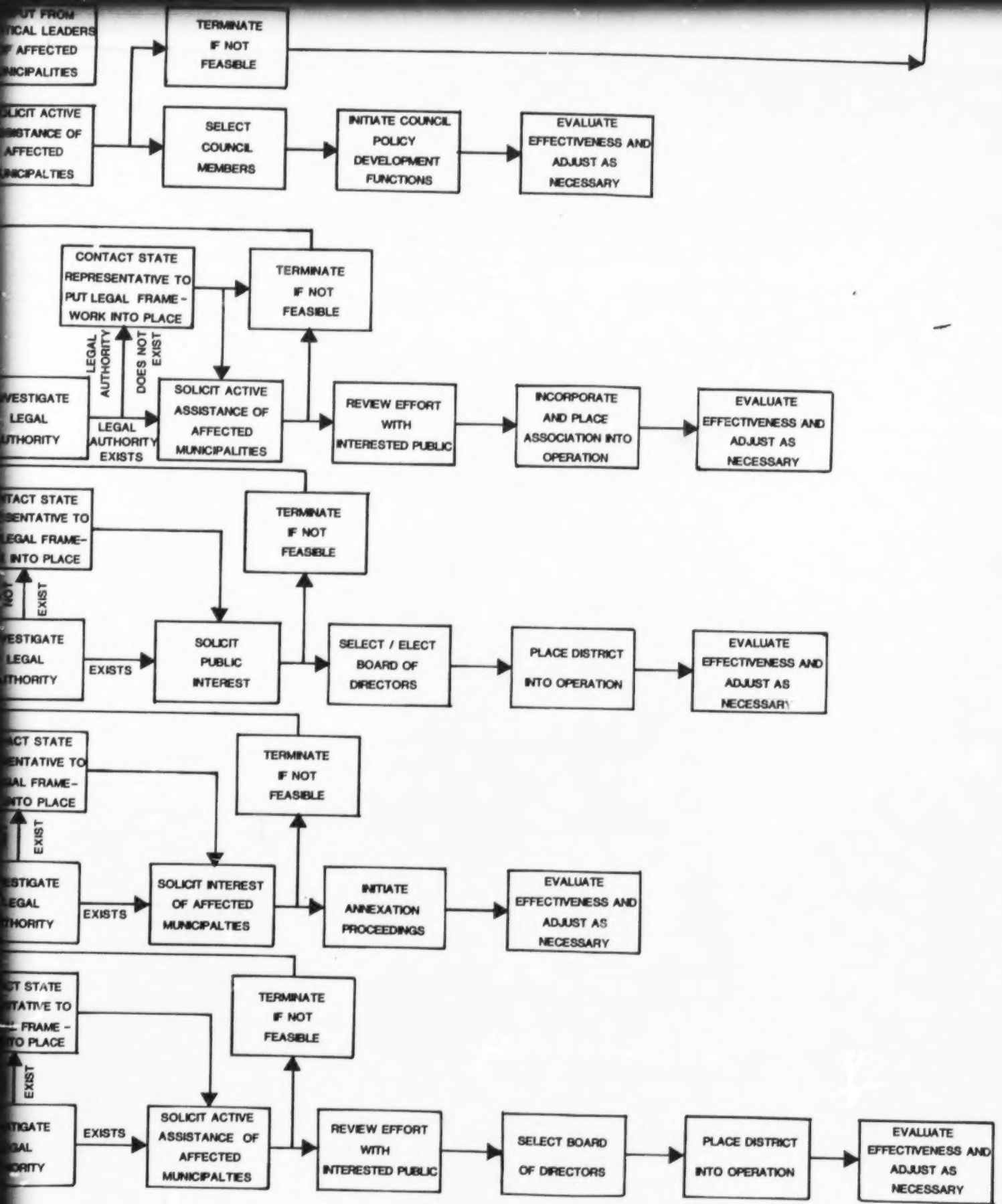
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LEGAL AUTHORITY EXISTS
REVIEW EFFORT WITH INTERESTED PUBLIC
INCORPORATE AND PLACE ASSOCIATION INTO OPERATION
EVALUATE EFFECTIVENESS AND ADJUST AS NECESSARY
TERMINATE IF NOT FEASIBLE
EXIST
SOLICIT PUBLIC INTEREST
EXISTS
SELECT / ELECT BOARD OF DIRECTORS
PLACE DISTRICT INTO OPERATION
EVALUATE EFFECTIVENESS AND ADJUST AS NECESSARY
TERMINATE IF NOT FEASIBLE
EXIST
SOLICIT INTEREST OF AFFECTED MUNICIPALTIES
EXISTS
INITIATE ANNEXATION PROCEEDINGS
EVALUATE EFFECTIVENESS AND ADJUST AS NECESSARY
TERMINATE IF NOT FEASIBLE
EXIST
SOLICIT ACTIVE ASSISTANCE OF AFFECTED MUNICIPALTIES
EXISTS
REVIEW EFFORT WITH INTERESTED PUBLIC
SELECT BOARD OF DIRECTORS
PLACE DISTRICT INTO OPERATION
EVALUATE EFFECTIVENESS AND ADJUST AS NECESSARY

APPENDIX A

CASE HISTORIES

The following actual case histories are presented to provide the reader with some insight into the varying complexities associated with a range of regionalization actions. They reflect real world situations and the associated benefits and problems. These case histories primarily reflect county and state level regionalization actions; however, those considering simpler regionalization options can still gain knowledge and guidance from the experience reflected therein.

CAMERON, TEXAS

In 1973, the Salem Elm-Ridge Water Supply Corporation, a relatively small (50 metered connections) water supplier, did not have adequate resources to staff qualified maintenance personnel. As a result, malfunctioning equipment was repaired by community volunteers. Customers read their own meters and submitted payment. Equipment downtime, inaccurate meter readings and late payments were major shortcomings of the system.

A small water service contractor was hired to properly maintain equipment and also to handle billing and collections. By 1977, Marlow Water Supply Corporation, North Milam Water Supply Corporation and Bell-Milam Falls Water Supply Corporation, three neighboring small water systems, were also sharing the services of the service contractor.

The four small water systems have grown over the years (total of 1,500 metered connections in 1983), but the growth has not been sufficient for any of the individual water systems to hire staff maintenance personnel. Thus, they expect to continue sharing the services of a system operator for the foreseeable future.

CADDO MILLS, TEXAS

In the late 1970s, the Hopewell Water System, a small water supplier (500 customers) in Caddo Mills, Texas, began to experience difficulty in meeting the increased demands brought on by new customers in certain areas. Due to the lack of water lines and inadequate pressure and capacity, a waiting list existed for customers desiring new metered connections. New housing and a customer desire to switch from private well water to public water supply had resulted in an overload of segments of the system. There were also some areas using private wells and not connected to the water supply system. In 1978, the Hopewell Water System applied to the Farmers' Home Administration (FmHA) for funds to finance a system expansion and upgrading.

Simultaneously, the FmHA received requests for loans from three neighboring small water suppliers, the Floyd Water System, the Merit Water System, and the Kellogg-Kingston Water System (total of 900 customers). The three water suppliers required expansions for reasons similar to those of the Hopewell Water System.

The FmHA strongly suggested that consolidation of the four small suppliers would result in a more efficient and, consequently, less costly operation. They felt that a larger system would be in a better position to improve service to the customers. The Board of Directors of the systems took the suggestion and voted in favor of merging. The FmHA loaned the funds for expansion to the newly created entity.

The four systems are not physically connected but they will be under the control of one administration. They are currently in the process of hiring a general manager to oversee construction, maintenance and operation

of the system. The maintenance and bookkeeping staff from the Hopewell Water System will be maintained for the consolidated system.

Plans for construction of new lines and modification and repair of old lines are currently underway. In the very near future it will be feasible to accommodate any new customers desiring the service of the water system.

INDIANA COUNTY MUNICIPAL SERVICES AUTHORITY (Pennsylvania)

In 1973, the Indiana County Board of County Commissioners created the Indiana County Municipal Services Authority to upgrade the quality of services provided to the residents of 11 county communities. Seven systems served 970 households in the central and southwestern portions of the county.

The commissioners chose an authority (a quasi-governmental unit) as their appropriate regionalization option because of its expected responsiveness to the needs of the residents, because it could move quickly to undertake a capital improvement project, because of its eligibility for Federal financing, and because of the success of similar entities throughout the state. The authority's success is well-demonstrated; the entity is now negotiating with five more systems that are considering joining with it.

The authority purchased the seven systems in September 1973; the systems had been constructed in the late 1800s and early 1900s. The communities themselves had been built by a coal company to house employees; when the mines closed or mechanized in the 1930s, the company sold the houses to a local real estate company. The houses were rented at low monthly rates, and no attempt was made to maintain the water systems.

Eventually, they fell into poor operating and physical condition. In some instances, pipes completely disintegrated and water flowed through channels of packed soil that had originally surrounded the pipes. Community residents complained about red water, discolored laundry, and the inadequate supply, and voiced their fear about the general water quality. Recognizing that the residents could not bear the costs of the necessary improvements, the commissioners created the authority.

After purchasing the systems, the authority took immediate steps to make short-term renovations with an interest-free loan from the county commissioners. In addition, the authority raised the flat rate charged to customers from $4 to $10 per month in an attempt to cover the costs of operating, maintaining, and renovating the systems.

The loan and rate increase, however, proved insufficient to cover the authority's operation and maintenance and capital improvement costs. Thus, in 1974, the Authority moved to begin securing funding from the Farmers Home Administration (FmHA) and the Appalachian Regional Commission (ARC).

A consulting engineering firm estimated the cost of the entire project to be $3.8 million. After three years of consultation with the FmHA and ARC, the authority was awarded a $2 million grant from FmHA and a supplemental grant of $330,000 from ARC. FmHA financed the remainder with a long term, low-interest loan.

The authority conducted its own interim financing during construction through the sale of short-term notes and securities and through the use of a no-interest revolving fund established by the county commissioners. The capital improvement project, completed in 1980, resulted in the construction of three new treatment plants (with processes for removal of iron, manganese, and hydrogen sulfide); seven new storage tanks; five new booster stations; 26 miles of distribution line sized for full fire service; and metering of all customers. Three systems were consolidated, so that five systems now serve the 11 communities.

The authority now charges a minimum rate of $12.50, with a block structure of $1.89 per 2,000 gallons. This rate structure results in an average monthly user charge of approximately $16.30 per month, consistent with projections made four years ago. Total revenues to date are sufficient to cover the operation and maintenance costs and debt service, although the authority is having some difficulty maintaining the reserve fund required in the FmHA grant/loan agreement.

To facilitate and simplify monthly collections, the authority implemented a coupon system. Customers read their own meters and send in their coupons and payments to the authority. This approach has proven successful; most payments arrive on an accurate and timely basis.

In addition to an administrative staff, the authority currently employs four full-time, certified water operators. The authority supplements this staff with temporary labor as much as possible to minimize overall labor costs. A laboratory at one of the treatment plants performs necessary testing. Although the laboratory is equipped for coliform testing, it is not yet certified to conduct this test.

The authority's success to date can be tied to a number of factors:

- Active participation of the residents affected by the project
- Documentation of the need of the project through the use of surveys and public meetings
- Active support of the county commissioners
- Aggressive authority management;
- Availability of Federal assistance and funding

The most notable factor making the authority a reality is the active support and assistance of the county commissioners. The board realized the importance not only of providing quality supplies of drinking water

to the county residents, but also of other services, such as sewerage and solid waste management facilities.

A second major factor was the encouragement and active participation and support of the residents affected by the project, which helped to ensure that the project was conceived to best suit their needs. Residents also helped demonstrate sufficient need to the FmHA and ARC.

Aggressive authority managers helped move the project expeditiously from early planning stages through construction. The management received notification of grant and loan awards from FmHA and ARC only three years after submitting preapplications (first step in the funding process). Construction took only 18 months and was so well managed that it had surplus funds after construction was completed. The efficient and timely construction of the project is, in large part, seen to be the result of the day-to-day involvement of authority management.

Of particular importance to the grant approval process was the availability of the documentation of the severity of the problem -- through survey information.

Finally, the availability of federal funding in the form of grants and loans was the primary factor that made the project economically feasible. Direct grants and long-term, low-interest loans were the only methods the authority could use to finance the project without severely burdening area residents.

STATE OF WASHINGTON

The State of Washington has provided a mechanism to provide an orderly water supply planning process and to encourage consolidation of water systems. Enabling legislation which formally incorporated these concepts into State policy was the Public Water System Coordination Act (PWSCA) of 1977. A main reason for initiating this legislation was growing awareness on the part of state officials of existing and potential water supply problems within the state. Specifically, they noted that the state had been experiencing several trends:

- Proliferation of small water systems;
- Non-uniform design standards;
- Overlapping of service areas;
- Conflicts between land use plans and water supply plans; and,
- Unnecessary duplication of water system facilities.

Due to a lack of coordination and communication between water systems, the state experienced the creation of many small water systems to serve small developments. This increasing number of small water systems placed an increasing burden on state government to ensure their proper

operation and maintenance. Additionally, due to their small size and lack of revenue, these water systems rarely had the financial resources to employ qualified operators, or properly maintain equipment.

The PWSCA was conceived to develop a planning process that would help to prevent future water supply problems from occurring as a result of the lack of communication, cooperation, and coordination. The two primary objectives of the Act were to:

- Achieve organized development of water utilities within a given geographic area; and,
- Integrate water system development with land use planning in a given geographic area.

A number of concepts were incorporated into the PWSCA which promote various aspects of consolidation. Consideration of shared or joint use facilities and the satellite support system concept is encouraged in the development of the Coordinated Water System Plan. Shared or joint use facilities is what the name implies, a common use of all or a portion of a facility by more than one water system. Significant reductions in construction and operation and maintenance costs can be realized by implementing such an approach.

Another concept promoted by the PWSCA is the "satellite support system" concept. This approach involves a single entity assuming the responsibility for the operation and maintenance of one or more small water systems. The small water system can elect to be either owned or not owned by the management entity. Economies of scale to be derived from this approach may make it possible to employ skilled personnel, utilize common repair parts and equipment, offer quicker response to system breakdowns and problems, and be more able to operate systems to meet strict federal and state drinking water standards without excessively burdensome water rates. Satellite systems can act as a precursor to development of a totally regional system.

It was also the intent of the Act that the responsibility for decision making rest with local government and the water supply utilities affected. The Department of Social and Health Services acts as technical consultant to the planning process, and review agency at the time of design of facilities.

To support this process, Funding Referendums 27 and 38 were conceived and passed to provide financial assistance for the planning, design, and construction of water supply facilities. Loans may finance 100 percent of the planning and design of projects, and grants may finance 40 percent of the eligible construction costs. Construction grants are generally available for water quality improvements, source development, water storage facilities, major transmission lines, pumping facilities, equipment and structures related to eligible projects, and site purchase and preparation.

The general planning process established by the PWSCA is as follows:

1) A preliminary assessment (evaluation) is prepared for existing water systems, documenting their problems. Specific problems addressed include, where appropriate: unreliable water quality, unreliable service, or lack of coordinated planning. Any of the problems can initiate the assessment. After completion, the assessment is reviewed by the DSHS and the County Legislative Authority.

2) If the assessment documents the presence of one or more of the problems, the general area affected is declared a Critical Water Supply Service Area. This declaration will either be made by the county or the Department of Social Health Services, and the affected parties are notified of this declaration.

3) After the declaration of the Critical Water Supply Service Area, a Water Utility Coordinating Committee is established. Committee members are appointed by the declaring body and must include representatives from the county legislative authority, the county planning agency, the county health agency, water purveyors serving greater than 50 customers, and the Department of Social Health Services. Other members may be appointed at the discretion of the DSHS. The prime responsibilities of the Water Utility Coordinating Committee include the establishment of the Critical Water Supply Service Area and the development of the Coordinated Water System Plan.

4) The development of external boundaries is the first task of the Water Utility Coordinating Committee. These boundaries establish the limit of the study area in the development of the Coordinated Water System Plan. A common set of "ground rules", (i.e., design standards, policies, etc.), will apply to the entire area. The proposed boundaries must be delineated within six months of appointment of the committee, and a report must be prepared justifying the boundary locations. This report is submitted to the affected county(s) for their review and consent. Typically, the development of the boundaries will be based upon a consideration of existing and projected land use, physical limitations to water service, existing political boundaries, future service areas of existing utilities, system hydraulics, and economic ability of water systems to meet minimum levels of service.

   After at least one public hearing, the Committee submits the proposal to the county(s) for final action. The county(s) must then hold at least two public hearings before accepting the Committee's proposal with or without modifications.

5) After the boundaries are approved, the Committee then moves to develop the Coordinated Water System Plan for the area. The development of proposed water system improvements must adhere to specific minimum design standards and plan development methodologies before the Department of Social and Health Services grants final approval to the plan. These minimum requirements are designed to ensure an

adequate level of evaluation of alternative improvements, their necessity, and compatibility of improvements with other water systems in the planning area.

The Plan must assess needs and corresponding water system improvements over a ten year period and must be revised at least once every five years. A time requirement of two years after boundary approval is generally applied for the development of the Plan.

The Plan normally consists of two sections:

- o Individual Water System Plan
- o Areawide Supplement

The Individual Water System Plan is developed for each water system in the Critical Water Supply Service Area, addressing the system's existing and projected needs. Basic descriptions include a discussion of service area characteristics, existing facilities, and anticipated improvements over a ten year period. The detail of the descriptions is tied to the size of the individual water systems. Each water system prepares its own plan.

The development of the Areawide Supplement is the responsibility of the Water Utility Coordinating Committee. This part of the Plan addresses the interrelationships of water systems within the Critical Water Supply Service Area. Topics in the supplement normally include:

- o Assessment of related water system plans and policies
- o Future service areas in the region
- o Minimum areawide design standards
- o Process for authorizing new water systems
- o Plans for development of joint use or regional facilities
- o Application of satellite support systems
- o Other topics of importance to the region
- o Compatibility of supplement with other plans and policies
- o Role of water utility coordinating committee
- o Considerations of the State Environmental Policy Act

Two different approaches may be taken in developing the Areawide Supplement:

- o Summarize the Individual Water System Plans

- o Develop a policy direction for Individual Water System Plans

  A summary can be developed to satisfy the Areawide Supplement requirements by compiling appropriate topics from each Individual Water System Plan. Areawide policies can also be developed first in the Supplement, and individual water systems can then use these policies to develop their own programs to meet existing and future needs.

  The use of either one of these approaches will depend in large part to the specific philosophies and needs within the Critical Water Supply Service Area. Combinations of both approaches are possible and allowed.

6) The final step in the PWSCA process is receiving approval for the Coordinated Water System Plan.

   Approval of the Coordinated Water System Plan occurs in two stages. The first, at the County level, assures that the Plan is consistent with all adopted land use plans and growth policies. After county review, the Department of Social and Health Services reviews the plan for completeness and adequacy of design of proposed facilities.

   If any objections from the county(s) arise during the first review phase, attempts are made to resolve these objections through negotiation between the county(s) and the Water Utility Coordinating Committee. If these conflicts are not resolved, then the DSHS has the authority to determine which projects will be approved on a case-by-case basis.

   Once approved, all new water supply facilities within the planning area must be developed in accordance with the Plan. The Department of Social and Health Services assumes responsibility for ensuring conformance with the Plan through its review of individual construction projects.

The success in implementing the PWSCA planning process is in large part due to local determinism with a team approach. By ensuring that all interested and affected parties have the opportunity to participate in the decision making process, the opportunity for developing an acceptable plan with the necessary support for acceptance and implementation is increased substantially.

COWLITZ COUNTY, WASHINGTON

In the mid 1960s the Cowlitz County Commissioners began to take positive steps to assess water supply needs in various communities within the county. Formal actions on the county level began in 1967 when the Washington State Legislature passed the County Area Service Act giving counties specific authority to own, construct, operate, and maintain water and/or sewer systems. The Act further gave counties the authority

to issue general obligation bonds, revenue bonds, and utility local improvement district assessments for the improvement, operation, and maintenance of these systems.

The first steps towards county consolidation of water and sewer systems began in 1967 when the citizens of Toutle, an unincorporated community in Cowlitz County, petitioned the County Commissioners to help them solve their water supply problems. The community had a population of 1,000 people, a public school, and the potential for significant future growth. Poor quality well water was cited as the major problem in the area. An engineering study of the area was conducted, the recommendations of which were to construct a supply, storage, and distribution system, and to take over a water system serving a public school in the community. It was also recommended that the County attempt to secure a FmHA grant/loan combination to help finance the project cost. A Utility Local Improvement District was proposed as the means to repay the FmHA loan by the use of assessments.

In 1970, negotiations were completed with the school district in Toutle and an application was submitted for FmHA funding to construct the Toutle water system.

In the same year, the County agreed to assume the ownership and operation of two developer-proposed water and sewerage systems. One system was proposed to serve a 50 unit mobile home park and the other was proposed to serve a residential development of approximately 250 lots. An agreement was also reached with the Castle Rock School District for the extension of a water main and sewer interceptor to a new high school in the County. The water main and sewer interceptor were completed in 1971 and the County again agreed to accept another developer-proposed water system serving a recreational area of approximately 15 lots.

In 1971, the County instituted an organizational change, creating a separate Department of Public Works, which took over the County's programs in water, sewer, and solid waste. Organizationally, this Department was to report directly to the Board of County Commissioners. To offset the minimal revenues being generated at that time from water sales, the expense of the Department was primarily paid for from property tax revenues.

With the notice of award of grant monies for the design and construction of the Toutle project, the County Commissioners also allocated federal revenue sharing funds to the water project. In order to finance the local share of the project, a petition was circulated to the residents of the area for the creation of a Utility Local Improvement District which was ultimately approved and formed in 1973. Construction began soon after and was completed in 1974. The completion of this project marked the first time that the County had directed the design, construction, and district financing of a water system.

Soon after this date, the County assumed the ownership and operation of the three previously mentioned developer built systems. The County also

went on to direct the design, construction, financing, and the operation and maintenance of a regional sewage treatment plant serving the Longview - Kelso urban area and a complete water and sewerage system for the unincorporated community of Ryderwood. Additionally, the County in 1979 began to contract services with the City of Castle Rock to operate and maintain their water and sewage treatment plants, and with the City of Winlock to operate and maintain their sewage treatment plant. Contracts have also been entered into for the operation of two private water systems, Studebaker Heights and Silver Firs.

The County now owns five water systems and contracts for the operation of one system as follows:

Camelot	65 connections
Toutle	223 connections
West Castle Rock	41 connections
Toutle River View	17 connections
Ryderwood	185 connections
Studebaker Heights (Contracted)	20 connections

In order to establish an orderly process for the takeover and/or construction of the project, the County also established several important policies:

- The County will investigate the feasibility of constructing a water system after first receiving a petition signed by a majority of the property owners that would be affected by such a system.

- The County will provide funds for the preliminary engineering and/or feasibility study which will become part of the project costs in the event the project becomes a reality.

- If a Utility Local Improvement District is necessary to finance the project, the County will proceed beyond the preliminary engineering and/or feasibility study stages only after its successful establishment.

- The County will create a Utility Local Improvement District only if petitioned to do so by the affected property owners, and if a serious public health or other extenuating circumstance exists.

- Utility Local Improvement District assessments will be developed as nearly as possible, according to the benefit derived by that property as a result of the improvement.

The County has found effective scheduling of time to be critical in the operation and maintenance of satellite water and sewer systems. Scheduling is particularly important in minimizing labor costs, a major contribution to operation and maintenance costs. As each system served varies in system process, and therefore, operation and maintenance requirements, scheduling of time was largely determined from manufacturers' and state requirements.

With the exception of the Ryderwood System, service routes to all the systems were relatively easy to establish, using the Castle Rock system as the focus. Due to their experience in operating and maintaining the Ryderwood System, the Public Works Department learned that geographic location is an important decision in determining the feasibility of including future systems in the management system. The Department has learned that the cost of providing a given service is largely dependent upon the frequency of service required and the amount of additional travel time required per service. Therefore, the Department will be much more willing to provide service to, or accept, systems close to systems already being served or along routes to systems being served.

In recent years the Department of Public Works has been experiencing sharply increasing costs. This has required several rate increases, and a continued operating subsidy from the County to make up deficits. The County, in 1980, was informed by the State Auditor that this subsidy had to be eliminated and yet was also informed by some of the users that the present rate was considered excessive and any future increases would be unacceptable. In 1981, the City of Castle Rock and City of Winlock terminated their contracts with the County. As a result of this pressure, the County was ultimately forced to ask the Department of Public Works to study alternatives to reduce the costs of operating and maintaining the systems under County management.

In justifying the County's role in managing a number of water and sewerage systems, the Department of Public Works cited the availability of funding to county level government as the most compelling reason. A number of these funding sources would not have been available to the communities or to a water or sewer district if the communities had created them. To help finance the construction of capital improvement projects to upgrade water and sewerage systems, the County had received federal revenue sharing funds, federal grants, and state grants.

The County was also advised by their Bond Counsel and Financial Consultant to attempt a County based management system rather than let each community form their own ULID. This recommendation was based upon the ability of a county to sell bonds easier and at a lower interest rate than small communities. Contributing factors were the ability of a County to establish a single and uniform accounting system and a larger resource base to respond to emergencies and major system repairs.

The Department identified a number of possible alternatives to consider:

- Return ownership of the systems to the communities
- Reduce labor costs
- Reduce overhead
- Reduce level of services
- Contract the operation of the systems
- Allow customers to read meters
- Eliminate debt service requirement

The return of ownership of the systems to the communities was considered unacceptable by the Department. As the systems were improved, and a level of debt incurred to finance these improvements, the County developed a legal responsibility to the holders of the outstanding bonds. In addition, the communities would have to accomplish the same level of service as was provided by the County. The only potential savings to the communities would be to use low paid or voluntary help to run their systems. This cost savings, however, would most likely be offset by lowering the quality of water service provided to the residents of the communities.

The County or communities certainly would not be able to raise funds necessary to satisfy bond repayment and operational requirements. On the basis of these considerations, neither the County nor the communities could afford to pursue this approach.

Inspection of their 1981 budget revealed that 51% of Department operation and maintenance costs was allocated to labor. They are considering staff reorganizations to possibly reduce some of the workload being expended at a number of the systems and to possibly eliminate some full time positions and replace them with part time help. Only a minor reorganization and staff reduction could be considered; a further changes other than what is contemplated would be expected to have a serious impact on the level and quality of service currently being provided.

While minor reductions in labor costs could occur, the Department knows that it would be virtually impossible to achieve any further reductions because of State imposed reporting and record keeping requirements. Delegating accounting functions and services to the communities and reducing this function in the Department would create legal and liability problems. Specifically, bond resolutions stipulate certain legally enforceable minimum requirements for record keeping, accounting, etc.

Daily monitoring, testing, and reporting of water and wastewater quality, and the general level of service required by permit conditions is based upon federal and state requirements. In addition, state law requires the presence of a certified operator to perform normal operation and maintenance procedures. As the Department's staff includes these certified operators, compensation rates must be comparable to other potential employers to ensure their continued employement with the Department. Federal funding sources which were used to finance the construction of many of the systems also have stipulations on proper operation and maintenance of these systems. For these reasons, the Department does not feel that it could feasibly reduce the level of services provided to its participating systems.

State law conveys the legal authority to counties to contract with other local governmental units. The most likely candidate to arrange a contract agreement with would be Ryderwood, the most distant satellite system. Ryderwood has an association which once owned and operated the community water system. The other systems currently do not have the necessary

institutional mechanism by which to enter into such a legal agreement. The Department does not feel that this alternative would result, however, in any significant cost savings either to the Department or to the communities served.

As the Department has found that it only uses eight manhours per month to read customer meters, the cost savings of turning this responsibility over to the customers would be offset by the time that would be required for re-reads, correcting mistakes, pursuing delinquencies, etc. For this reason, the Department has dismissed this factor as a viable alternative.

As not all of the Toutle revenue bonds are covered by the assessments levied as a part of the Utility Local Improvement District, expenditures are required for bond redemption. As the County currently has a substantial amount of money in its Water and Sewer Revenue Bond Fund, the Department is considering investing those monies and their outstanding balance in such way to reduce substantially, if not eliminate, the difference between the special assessments and the total amount of bonds outstanding.

It has been projected by the Department that the implementation of the various feasible alternatives could result in a significant savings, but an increase in rates will again be necessary in 1982 to balance the department's budget. After that time, the Department would anticipate future rate increases only if the growth in revenues from new customers does not exceed the inflationary increase in expenses.

The Department of Public Works believes that the County should continue to support their efforts to make the present water and sewer system management structure more cost effective and self-sufficient, and to continue the policy of providing water and sewer service to those residents requesting it. Each proposed new addition to the system, however, will be evaluated as to its financial impact prior to its acceptance.

APPENDIX B

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